

WHAT IS CLAIMED IS:

1. An image capturing apparatus comprising:
 - an image capturing part for capturing an image of a subject;
 - a plurality of drivers for driving said image capturing part in a plurality of directions on the basis of a plurality of drive speed control values, respectively;
 - an instructor for instructing a designated amount of operation of said image capturing part;
 - a detector for detecting whether or not each drive speed control value for said designated operation is within a structural resonance range of said image capturing part, to determine an objective drive speed control value which is within said structural resonance range among said plurality of drive speed control values;
 - a changing part for changing said objective drive speed control value to an alternative drive speed control value to reduce a driving time period of said objective driver required for said designated amount of operation; and
 - a controller for controlling said plurality of drivers with said plurality of drive speed control values in which said objective drive speed control value is changed to said alternative speed control value.
2. The image capturing apparatus according to claim 1, wherein said plurality of drivers are pulse motors.
3. The image capturing apparatus according to claim 2, wherein said plurality of drive speed control values are a plurality of pulse rates given to said plurality of drivers, respectively.

4. The image capturing apparatus according to claim 1, wherein

when no drive speed control values are detected within said resonance range by said detector, said controller controls said image capturing part such that respective actions of said plurality of drivers for said designated amount of operation are almost simultaneously finished.

5. An image capturing apparatus comprising:

a first driver for changing a relative angle of an image capturing part to an image capturing apparatus body in a first direction;

a second driver for changing said relative angle in a second direction;

a controller for controlling respective driving operations of said first and second drivers;

an instructor for instructing a designated amount of change in said relative angle for attaining a designated change in an image capturing direction; and

a setting part for setting a first drive amount and a first drive speed control value for said first driver and setting a second drive amount and a second drive speed control value for said second driver on the basis of said designated amount of change in said relative angle instructed by said instructor,

wherein, when resonance conditions that:

i) said first drive amount is smaller than said second drive amount, and

ii) said first drive speed control value is within a structural resonance range of said image capturing apparatus,

are satisfied, said setting part changes said first drive speed control value to an alternative speed control value out of said resonance range, and

when said resonance conditions are satisfied, said controller controls said

second driver drive on the basis of said second drive speed control value and controls said first driver drive on the basis of said alternative speed control value such that said first drive amount is attained by said first driver within a time period in which said second drive amount is attained by said second driver.

6. The image capturing apparatus according to claim 5, wherein

when said resonance conditions are satisfied, said controller controls said second driver on the basis of said second drive speed control value, controls said first driver on the basis of said alternative speed control value and, controls such that the driving operation of said second drive amount by said second driver is completed after completion of the driving operation of said first drive amount by said first driver,

7. The image capturing apparatus according to claim 5, wherein

when said resonance conditions are not satisfied, said controller controls said first driver on the basis of said first drive speed control value, controls said second driver on the basis of said second drive speed control value, and controls such that driving operation of said first drive amount by said first driver and the driving operation of said second drive amount by said second driver are almost simultaneously started and thereafter almost simultaneously finished.

8. The image capturing apparatus according to claim 5, wherein

when said resonance conditions are satisfied, said setting part changes said first drive speed control value to a value larger than a maximum value of said resonance range, as said alternative speed control value,.

9. The image capturing apparatus according to claim 5, wherein said first and second drivers are first and second pulse motors.

10. The image capturing apparatus according to claim 9, wherein said first and second drive speed control values are first and second pulse rates given to said first and second pulse motors, respectively.

11. An image capturing apparatus comprising:
a first driver for changing a relative angle of an image capturing part to an image capturing apparatus body in a first direction;
a second driver for changing said relative angle in a second direction;
a controller for controlling said first and second drivers; and
an instructor for instructing a designated amount of change in said relative angle for attaining a designated change in an image capturing direction,
wherein said controller is operable to attain said designated amount of change in said relative angle with a combination of:
a) a first control time period in which said controller controls said first and second drivers on the basis of first and second drive speed control values, respectively, and
b) a second control time period following said first time period in which said controller controls said first and second drivers while stopping one of said first and second drivers,
wherein said first and second drive speed control values are determined out of a structural resonance range of said image capturing apparatus.

12. The image capturing apparatus according to claim 11, wherein said first and second drivers are first and second pulse motors.

13. The image capturing apparatus according to claim 12, wherein said first and second drive speed control values are first and second pulse rates given to said first and second pulse motors, respectively.